

Remarks

Claims 1-5, 10-20, 24-26, 28-32, and 34 were pending in the subject application. By this Amendment, claims 1 and 17 have been added and claim 34 has been canceled. No new matter has been added. Support for these amendments can be found throughout the original specification and claims (see, for example, page 3, lines 30-31; page 9, lines 10-15; page 7, line 25 through page 8, line 3; and Table 1). Entry and consideration of the amendments presented herein is respectfully requested. Accordingly, claims 1-5, 10, 11, 13-20, 25, 26, and 28-32 are currently before the Examiner.

The amendments to the claims have been made in an effort to lend greater clarity to the claimed subject matter and to expedite prosecution. These amendments should not be taken to indicate the applicants' agreement with, or acquiescence to, the rejections of record. Favorable consideration of the claims now presented, in view of the remarks and amendments set forth herein, is earnestly solicited.

Claims 1-5, 13-15, 17-20, 25, 26, 29-32, and 34 have been rejected under 35 U.S.C. §102(b), as being anticipated by Gillespie (U.S. Patent No. 5,783,503) as evidenced by Tortora (*Understanding Textiles*, pages 38, 39, 330, and 402). The applicant respectfully traverses this ground for rejection because the cited reference does not disclose (or even suggest) the applicant's advantageous method as now claimed.

By this Amendment, claim 1 has been amended to recite that the at least one antistatic agent is "present in an amount sufficient such that the static level measured at about one half inch below the outlet of an slot attenuation device is between about -2 kilovolt per inch and about 2 kilovolt per inch." Similarly, claim 17 has been amended to recite that the one or more antistatic agents either in a master batch or a base resin is "present in an amount sufficient such that the static level measured at about one half inch below the outlet of an slot attenuation device is between about -2 kilovolt per inch and about 2 kilovolt per inch." Thus, the claims as amended now positively recite that the antistatic agent be present in an amount sufficient to give the claimed static level, measured at about one half inch below the outlet of the slot attenuation device, of about -2 kilovolt per inch to about 2 kilovolt per inch.

This feature of the claimed invention is described throughout the subject specification (see, for example, page 9, lines 10-15 and Table 1). Also, as discussed in paragraph 10 of the Expert Declaration of Albert E. Ortega attached (hereinafter “the Ortega Declaration”), Mr. Ortega, as a skilled artisan, would readily understand from the subject specification that the method of the subject invention can include forming, in an extruder, a melt blend of at least one polymer and, additionally at least one antistatic agent present in an amount sufficient such that the static level measured at about one half inch below the outlet of the slot attenuation device is between about -2 kilovolt per inch and about 2 kilovolt per inch.

In Gillespie, on the other hand, there is no disclosure of adding an antistatic agent, let alone in an amount sufficient to give a static level at the attenuation device outlet in the claimed range. The Action states at page 2 that nylon or polyester can be antistatic agents due to their standard moisture regain. Though the applicant does not necessarily agree with this assertion, as discussed in paragraph 3 of the Ortega Declaration, this is not a complete picture of the effects of the presence of these components in the blend with respect to static levels at the exit of an attenuation device. This statement in the Action neglects to take into consideration the triboelectric charge, as discussed at column 9, lines 53-55 of Gillespie. The development of the triboelectric charge in the filaments would result in an increase in the static level at the exit of an attenuation device. Additionally, nylon filaments develop a large amount of static when air is used to draw these filaments, as in the process of Gillespie. Thus, including nylon or polyester as “antistatic agents”, in any amount, in the blend of Gillespie would not result in a static level at the exit of an attenuation device of between about -2 kilovolt per inch and about 2 kilovolt per inch.

Additionally, by this Amendment, claims 1 and 17 have each been amended to recite that “the filaments of the web are bonded at a temperature of between 180 °C and about 250 °C” (emphasis added). Gillespie, on the other hand, fails to disclose this step of bonding the filaments at a temperature in the claimed range.

The Action at page 3 discusses the temperatures at which components are extruded in Gillespie and then asserts that bonding must be done at these extrusion temperatures (which the Examiner states are within the claimed range) because “spunbonding is necessarily done by

bonding the filaments while they are still molten.” The Examiner refers to the first paragraph of page 330 of the Tortora reference for support of this position.

However, as discussed in paragraph 1 of the Ortega Declaration, this is not accurate. In a spunbonding process, after the filaments are extruded, they are quenched (cooled), drawn, and laid on a web before being bonded. The filaments may be molten when they are bonded (for example, by being melted again in a calendar), but they are not necessarily at the same temperature at which they are extruded. Submitted herewith is a Declaration Under 37 C.F.R. 1.132 of Dr. Billie Collier (hereinafter referred to as “the Collier Declaration”), one of the co-authors of the Tortora reference. In her Declaration, Dr. Collier clarifies that the description of the spunbonding process given in the first paragraph of page 330 of the Tortora reference is incomplete. As discussed in paragraph 2 of the Collier Declaration, in the most recent edition (seventh edition, 2009) of *Understanding Textiles*, the description has been expanded upon to include description of the cooling, drawing, and depositing that takes place between the extrusion and the bonding. Thus, as demonstrated by paragraph 1 of the Ortega Declaration and paragraphs 1 and 2 of the Collier Declaration, a skilled artisan would readily understand that bonding does not necessarily take place at the same temperature as extrusion.

Moreover, Gillespie does not even disclose that “a blend of nylon and polyolefins is able to be extruded at about 250 °C,” as stated at page 3 of the Action. Instead, as discussed in paragraph 2 of the Ortega Declaration, Gillespie does not teach that a blend of nylon and polyolefins is able to be extruded at about 250 °C, but rather that such a blend can come together in a spin pack at this temperature (see also column 8, lines 45-53 of Gillespie).

As the Examiner is aware, it is well established that in order to anticipate, a single reference must disclose within the four corners of the document each and every element and limitation contained in the rejected claim. *Scripps Clinic & Research Foundation v. Genentech Inc.*, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). As discussed above, Gillespie fails to teach several elements of the claimed invention. For example, there is no disclosure of bonding the filaments at a temperature of between 180 °C and about 250 °C, or of including an antistatic agent in the melt blend in an amount sufficient to give the static levels claimed in the subject invention.

Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection under §102.

Claims 1-5, 13-15, 17-20, 25, 26, 29-32, and 34 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Gillespie in view of Tortora (*Understanding Textiles*, pages 153-157, 330, 401, and 402). The applicant respectfully traverses this ground of rejection because the references, either taken alone or in combination, do not teach or suggest the applicant's method as now claimed.

The Action states that it would have been obvious to use the antistatic metal or carbon of Tortora in the Gillespie fibers. As discussed above, by this Amendment, claims 1 and 17 have been amended to require that the antistatic agent is present in an amount sufficient to give a static level measured at about one half inch below the outlet of the slot attenuation device of between about -2 kilovolt per inch and about 2 kilovolt per inch. As discussed by the applicant in the Amendments of April 24, 2008, August 4, 2008, and May 26, 2009, a very high amount of carbon black is required to see any appreciable antistatic effect. Also, as discussed in paragraph 1 of Mr. Ortega's previous Declaration filed October 12, 2007, it is well-known in the art that using carbon black in the melt stream of a polymer, especially in high proportions, would severely plug filters and packs. The amount of carbon black or metal that would be required to be present in the melt in order to be sufficient to give a static level as claimed would be so high that a skilled artisan would not have had a reasonable expectation of success in being able to complete the process (especially the extruding). Due to these factors, a skilled artisan would have found neither a reason to combine, nor an expectation of success in doing so, the metal or carbon black taught by Tortora synthetic fibers with the process of Gillespie.

The mere fact that the purported prior art could have been modified or applied in some manner to yield an applicant's invention does not make the modification or application obvious unless "there was an apparent reason to combine the known elements in the fashion claimed" by the applicant. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 550 U.S. 398, 127 S. Ct. 1727, 82 U.S.P.Q.2d 1385 (2007). Also, an applicant's invention is not "proved obvious merely by demonstrating that each of its elements was, independently, known in the

(purported) prior art.” *Id.* As discussed above, a skilled artisan would not have had a reason to modify the teachings of Gillespie and Tortora to arrive at the claimed invention, including the addition of enough carbon black or metal to observe the quantitative static level claimed.

Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) based on Gillespie in view of Tortora.

Claims 1-5, 10, 11, 13-20, 25, 26, and 28-32 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Gillespie in view of either Warburton (U.S. Patent No. 4,081,383) or George (U.S. Patent No. 4,167,464). The applicant respectfully traverses this ground of rejection because the cited references, either taken alone or in combination, do not teach or suggest the claimed invention.

The Action states that Gillespie teaches to incorporate into the polymer melt components to control electrical properties, citing column 5, lines 35-42. However, Gillespie is primarily concerned with producing splittable filaments (see, e.g., column 5, lines 38-39), and the only additives to control electrical properties contemplated by Gillespie are those that might increase static buildup at the outlet of an attenuation device. As Gillespie teaches at column 9, lines 53-63, “[a] triboelectric charge can be developed in the filaments to promote separation... [a] nylon component can develop such a static charge... (and) [a]n external electric field can be applied to the filaments... to augment the separation” (emphasis added). Thus, Gillespie teaches away from any additives that would lower the static level at the outlet of an attenuation device since that would inhibit separation of the filaments, in direct contrast to the goal of the Gillespie process.

The Action also asserts that it would have been obvious to use the copolymer composition of Warburton *et al.* in the extrusion of Gillespie in order to provide the product with better anti-soiling properties and to control the anti-soiling treatment’s polymer particle size. Warburton *et al.* disclose an aqueous dispersion (column 1, lines 45-47), including a polymeric material, as an anti-soiling treatment for carpets and carpet yarns. As discussed in paragraph 4 of the Ortega Declaration submitted herewith, a skilled artisan would recognize that addition of water, such as with the aqueous dispersion of Warburton *et al.*, into an extruder would cause problems since it could lead to depolymerization of polymers typically used in

melt blends. Also, as discussed in paragraph 6 of the Ortega Declaration, a skilled artisan would not have been motivated to use any individual components of the aqueous dispersion of Warburton to attempt to impart anti-soiling properties to any fabric; rather the entire dispersion (including the water), would be used, as taught by Warburton.

Moreover, as discussed in paragraph 5 of the Ortega Declaration, since the aqueous dispersion of Warburton is applied directly to carpets and/or carpet yarns, a skilled artisan would not have had a reasonable expectation of success that the addition of this dispersion to a melt blend (before extrusion, quenching, drawing, web formation, and bonding), would impart any anti-soiling properties to a spunbonded nonwoven fabric like it does when applied directly to a carpet or carpet yarn. Nor would a skilled artisan have expected any other advantageous properties of Warburton's aqueous dispersion (intended for direct application to carpets and/or carpet yarns), such as any possible reduction in static build-up (column 6, lines 34-37), to be imparted to a spunbonded nonwoven fabric, when added to a melt blend (before extrusion, quenching, drawing, web formation, and bonding). Any component added to a melt blend will be subjected to high temperatures, so it would not be expected that the same properties would be imparted as in the case when Warburton's aqueous dispersion is applied directly to a carpet and/or carpet yarn. It would only make sense to apply the aqueous dispersion of Warburton *et al.* to the finished fabric of Gillespie since then a skilled artisan could ensure that the Warburton dispersion would retain its properties (even though it's not clear if such properties would even be imparted to a spunbonded fabric). The applicant notes that claims 1 and 17 as amended require actually bonding the filaments at a temperature between 180 °C and 250 °C.

With respect to George, the Action asserts that it would have been obvious to include George's copolymer composition in the extrusion of Gillespie in order to provide the product with better absorption of water and other bodily fluids. However, as discussed in paragraph 8 of the Ortega Declaration, the highest temperature any of the compounds in George is subjected to about 50 °C (column 7, lines 64-65). A skilled artisan would not have reasonably expected any advantageous properties of George's interpolymer (only subjected to low temperatures), including water absorbency, to be imparted to a spunbonded nonwoven fabric when added to a melt blend (before extrusion, quenching, drawing, web formation, and

bonding). Any component added to a melt blend will be subjected to high temperatures (much higher than 50 °C), so it would not be expected that the same properties would be imparted after melting the interpolymer and mixing with several other components in a melt blend. It would only make sense to apply the film coating of George to the finished fabric of Gillespie since then a skilled artisan could ensure that the George compound would retain its properties (even though it's not clear if such properties would even be imparted to a spunbonded fabric). The applicant notes that claims 1 and 17 as amended require actually bonding the filaments at a temperature between 180 °C and 250 °C.

Furthermore, George discloses the preparation of water absorbent films and fibers by photopolymerizing various compounds. As discussed in paragraph 7 of the Ortega Declaration, all of the films and fibers of George contain water (column 7, line 45 through column 8, line 10; Tables 1 and 2). A skilled artisan would recognize that addition of water into an extruder would cause problems since it could cause depolymerization of polymers typically used in melt blends. Additionally, as discussed in paragraph 9 of the Ortega Declaration, a skilled artisan would not have been motivated to use any individual components of the George composition to attempt to impart water absorbency properties to any fabric; rather the entire composition (including the water) would be used, as taught by George.

In addition, the applicant notes that the low-temperature nature of the systems of Warburton *et al.* and George have been discussed at length in the previous Amendments filed by the applicant. By this amendment, claims 1 and 17 have been amended to require actually bonding the filaments at a temperature between 180 °C and 250 °C. Thus, a skilled artisan would not have had a reasonable expectation of success in using any compounds taught by Warburton *et al.* or George in a process that would include bonding at those temperatures. The applicant notes that recitation of actually bonding the filaments at a temperature between 180 °C and 250 °C was previously presented in claim 34 and that this rejection was not applied to claim 34.

As discussed above, a skilled artisan would not have had a reason to include, or a reasonable expectation of success in doing so, any of the substances taught by Warburton *et al.* or George in the melt blend of Gillespie. Even assuming for the sake of argument, that one of

these substances was actually included in Gillespie's melt blend, absent the applicant's disclosure, there would have been no reason to include such a substance in an amount sufficient to give a static level in the claimed range.

Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection based on Gillespie in view of either Warburton *et al.* or George.

In view of the foregoing remarks, the applicant believe that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

The applicant also invites the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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Attachments: Declaration of Albert E. Ortega
Declaration of Dr. Billie Collier